

WHAT IS CLAIMED IS:

See. 02 1. A lamp device for a vehicle comprising:
a light source;
a reflector in which a reflection surface is a free
5 curved surface;
a lens having no prism; and
a reflected light by said reflector transmitting
through said lens so as to be irradiated to an external section
in accordance with a target light distribution pattern,
10 wherein said lens is formed in a convex shape in a
vertical cross section and a horizontal cross section.

2. The lamp device for a vehicle according to claim 1,
wherein the reflection surface of said reflector is
15 structured such that the vertical cross section and the
horizontal cross section are formed in a substantially
hyperboloidal surface smaller than said lens.

3. The lamp device for a vehicle according to claim 1,
20 wherein a free curved surface formed on the reflection
surface of said reflector is a non-uniform rational B-spline
surface (NURBS).

4. The lamp device for a vehicle according to claim 2, wherein a free curved surface formed on the reflection surface of said reflector is a non-uniform rational B-spline surface (NURBS).

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5. The lamp device for a vehicle according to claim 1, wherein a torus curved surface or a free curved surface is formed on a front surface or/and a back surface of said lens.

10 6. The lamp device for a vehicle according to claim 2, wherein a torus curved surface or a free curved surface is formed on a front surface or/and a back surface of said lens.

15 7. The lamp device for a vehicle according to claim 3, wherein a torus curved surface or a free curved surface is formed on a front surface or/and a back surface of said lens.

8. The lamp device for a vehicle according to claim 4, wherein a torus curved surface or a free curved surface is
20 formed on a front surface or/and a back surface of said lens.

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